

WHAT IS CLAIMED IS:

1. An exposure apparatus for exposing a pattern formed on a reticle to an object to be exposed, comprising:

- 5 detecting means for measuring a position of the object to be exposed at a plurality of first measurement positions that meet a predetermined relative positional relationship in an exposure region of the object to be exposed to which the pattern is exposed and for measuring a position of
10 the object to be exposed at a plurality of second measurement positions that meet the predetermined relative positional relationship in regions outside the exposure region; and
- 15 control means for controlling at least one of a position, a height, and a tilt of the object to be exposed based on information on the position of the object to be exposed which is measured by the detecting means.

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2. An exposure apparatus according to claim 1, wherein the plurality of first measurement positions are not arranged in a straight line.

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3. An exposure apparatus according to claim 1, wherein the first measurement positions include the three or more measurement positions.

4. An exposure apparatus according to claim 1,
wherein the three measurement positions among the
plurality of first measurement positions form a
triangle.

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5. An exposure apparatus according to claim 1,
wherein the plurality of second measurement positions
are not arranged in a straight line.

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6. An exposure apparatus according to claim 1,
wherein the second measurement positions include the
three or more measurement positions.

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7. An exposure apparatus according to claim 1,
wherein the three measurement positions among the
plurality of second measurement positions form a
triangle.

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8. An exposure apparatus according to claim 1,
wherein the object to be exposed is scanned and
exposed in the exposure region having a slit shape.

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9. An exposure apparatus according to claim 8,
wherein the second measurement position is shifted
relative to the exposure region having the slit shape
in the scanning direction.

10. An exposure apparatus according to claim 9,
wherein:

the detecting means measures a position of the
object to be exposed at a plurality of third
5 measurement positions that meet the predetermined
relative positional relationship in the regions
outside the exposure region; and

the direction in which the second measurement
position is shifted relative to the exposure region
10 having the slit shape is opposite to a direction in
which the third measurement position is shifted to
the exposure region having the slit shape.

11. An exposure apparatus according to claim 1,
15 further comprising a projection optical system for
projecting the pattern to the object to be exposed,
wherein the detecting means detects a position of the
object to be exposed in a direction parallel to an
optical axis of the projection optical system at the
20 first measurement position and the second measurement
position.

12. An exposure apparatus for exposing a
pattern formed on a reticle to an object to be
25 exposed, comprising:

detecting means for measuring a plurality of
positions of regions outside a region of the object

to be exposed to which the pattern is exposed and
measuring the same positions as the plurality of
positions of the region of the object to be exposed
to which the pattern is exposed; and

5 control means for controlling at least one of a
height and a tilt of the object to be exposed to
align the position of the object to be exposed with
an optimum exposure position of the pattern based on
information on the position of the object to be
10 exposed which is measured by the detecting means.

13. An exposure apparatus according to claim 12,
wherein the detecting means measures the plurality of
positions to form a plane on the object to be exposed.

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14. An exposure apparatus according to claim 12,
wherein the detecting means measures at least three
positions of the regions outside the region of the
object to be exposed to which the pattern is exposed
20 and the region to which the pattern is exposed.

15. An exposure apparatus according to claim 12,
wherein the detecting means measures five positions
of the regions outside the region of the object to be
25 exposed to which the pattern is exposed and the
region to which the pattern is exposed.

16. An exposure apparatus according to claim 12,
wherein the detecting means performs measurement in a
scanning direction of the object to be exposed to
measure the plurality of positions arranged at
5 different intervals in a non-scanning direction.

17. An exposure apparatus according to claim 12,
wherein the detecting means performs measurement on a
plurality of positions of the regions outside the
10 region of the object to be exposed to which the
pattern is exposed and the region to which the
pattern is exposed, by using a slit-shaped beam.

18. An exposure apparatus according to claim 17,
15 wherein the slit-shaped beam aligns a pitch direction
thereof to a substantially center position among the
plurality of positions.

19. An exposure apparatus for projecting and
20 exposing a circuit pattern formed on a reticle to an
object to be exposed using a projection optical
system while relatively scanning the reticle and the
object to be exposed, comprising:

a focus detection system for, in at least one of
25 a preceding region and a succeeding region of an
exposure region of the object to be exposed,
substantially simultaneously illuminating a plurality

of positions which are arranged in a direction
perpendicular to a scanning direction on the object
to be exposed with light oblique with respect to the
object to be exposed, and detecting the light from
5 the object to be exposed with a sensor to determine
the plurality of positions of the object to be
exposed in an optical axis direction of the
projection optical system; and

control means for controlling at least one of
10 the position of the object to be exposed in the
optical axis direction and a tilt thereof based on
information on the plurality of positions of the
object to be exposed in the optical axis direction,
which are determined by the focus detection system,
15 wherein the plurality of positions are arranged
to form a plane on the object to be exposed and the
plurality of positions of the exposure region match
the plurality of positions of at least one of the
preceding region and the succeeding region of the
20 exposure region of the object to be exposed.

20. An exposure method of exposing a pattern
formed on a reticle to an object to be exposed,
comprising the steps of:

25 measuring a plurality of positions in a region
outside a region of the object to be exposed to which
the pattern is exposed;

driving the object to be exposed and adjusting
at least one of a height and a tilt thereof to align
a position of the object to be exposed with an
optimum exposure position for the pattern based on
5 information on the positions obtained in the
measuring step;

measuring the same positions as the plurality of
positions, in the region of the object to be exposed
to which the pattern is exposed and confirming
10 whether or not the object to be exposed is in the
optimum exposure position;

calculating a difference between the optimum
exposure position and the position of the object to
be exposed in a case where the confirming step
15 reveals that the object to be exposed is not in the
optimum exposure position; and

driving the object to be exposed while adding
the difference calculated in the calculating step to
at least one of the height and the tilt of the object
20 to be exposed in the driving step.

21. A device manufacturing method comprising
the steps of:

performing projection and exposure on an object
25 to be exposed using the exposure apparatus according
to claim 1; and

performing a predetermined process on the object

to be processes after the projection and exposure.

22. A device manufacturing method comprising the steps of:

5 performing projection and exposure on an object to be exposed using the exposure apparatus according to claim 12; and

performing a predetermined process on the object to be processes after the projection and exposure.

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23. A device manufacturing method comprising the steps of:

performing projection and exposure on an object to be exposed using the exposure apparatus according to claim 19; and

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performing a predetermined process on the object to be processes after the projection and exposure.